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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------------|------------------|
| 10/643,457 | 08/19/2003 | Brian Lester Halla | 08211/0200237-US0/P05501 | 4123 |
| 38845 | 7590 | 07/24/2006 | EXAMINER LEUBECKER, JOHN P | |
| DARBY & DARBY P.C. P.O. BOX 5257 NEW YORK, NY 10150-5257 | | | ART UNIT 3739 | |
| PAPER NUMBER | | | | |

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,457

Applicant(s)

HALLA ET AL.

Examiner

John P. Leubecker

Art Unit

3739

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-18 and 26-44 is/are pending in the application.
- 4a) Of the above claim(s) 12-18 and 44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-35 and 40-43 is/are rejected.
- 7) ☒ Claim(s) 36-39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Election/Restrictions

1. Newly submitted claim 44 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claim 44 belongs to non-elected group II for the same reasons as earlier presented with respect to the method claims.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 44 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the:

a) “outer shell that covers at least a portion of the shell” (claim 27) must be shown (to some degree of peculiarity, which would include enumeration in a Figure, on how it differs from the shell) or the feature(s) canceled from the claim(s). No single figure or multiple figures adequately show an element enumerated as an “outer shell” nor show this “outer shell” covering at least a portion of the shell. No new matter should be entered.

b) “covering that is applied over at least a portion of the shell” (claim 31) must be shown (to some degree of peculiarity, which would include enumeration in a Figure, on how it differs from the shell) or the feature(s) canceled from the claim(s). It is noted that, although Applicant states that protective layer (506) in Figure 5(b) MAY ACT as a “covering”, the specification fails to equate such protective layer as the covering (which might potentially cause confusion if

Art Unit: 3739

Applicant intends for the claimed “covering” to be different from the protective layer 506) and Figure 5(b) fails to explicitly show the so-called “covering” (506) “applied over at least a portion of the shell”. Although the line below (506) in Figure 5(b) is not enumerated or described, the specification at page 9, lines 5-9 implies that this might be the support (502) and substrate (501). No new matter should be entered.

c) “protective housing, and wherein the support and substrate are arranged inside of the protective housing” (claim 38) must be shown (to some degree of peculiarity, which would include enumeration in a Figure, on how it differs from the shell) or the feature(s) canceled from the claim(s). It is noted that, although Applicant states that protective layer (506) in Figure 5(b) MAY ACT as a “protective housing”, the specification fails to equate such protective layer as the protective housing (which might potentially cause confusion if Applicant intends for the claimed “protective housing” to be different from the protective layer 506) and Figure 5(b) fails to explicitly show the so-called “protective housing” (506) “wherein the support and substrate are arranged inside of the protective housing” (in a combination additionally including a shell). Although the line below (506) in Figure 5(b) is not enumerated or described, the specification at page 9, lines 5-9 implies that this might be the support (502) and substrate (501). These do not appear to in “inside the protective housing”. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure

Art Unit: 3739

must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: (510) (page 9, line 6). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: (601). Corrected

Art Unit: 3739

drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 26-29, 31, 32 and 40-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Meron et al. (WO 01/53792).

Referring mainly to Figure 7, Meron et al. disclose a capsule endoscope (50) having a curved contour shape and including a shell (53) which includes one or more sensors (52,55), wherein at least one of the one or more sensors is curved to shape to the contour (note Figs. 7 and 8). Band (54) forms an outer shell as claimed (claim 27), a covering as claimed (claim 31),

and a substrate as claimed (claim 32). At least one of the sensors (55) is an imaging sensor (page 11, lines 22-28) including a lens (optical system). Sensors (52) are considered "active sensors". The apparatus also includes an illuminator (51, Fig. 7).

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 26-29, 31, 32 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meron et al. (US 2002/0109774) in view of McKenna et al. (U.S. Pat. 6,261,226).

Referring mainly to Figures 6 and 7, and as relevant to claims 26 and 40, Meron et al. disclose a CE comprising a capsule (60) having a curved contour shape (Fig. 6) and further including a shell (not numbered but shown as the cross-hatched oval in Fig. 6) which includes one or more sensors (64, 64', 64''). Illuminators (63) are associated with each sensor. Meron et al. fails to disclose that the sensors are curved to the shape of the contour of the shell. McKenna et al. disclose a device in the pertinent art (endoscopes) having a similar sensor configuration (note plurality of circumferentially facing imaging sensor arrangements 55 in Figure 4) for substantially the same purpose (e.g., 360 degree viewing). Additionally, illuminators (90) are associated with each image sensor. In addition, McKenna et al. teach an alternative embodiment shown in Figures 18-20 wherein elements of the sensors are arranged in continuous bands around the circumference of the wall of the endoscope (Figs. 18-20), providing sensors curved to shape

Art Unit: 3739

to the contour of the outer wall. This embodiment also includes illuminators (330) associated with the sensors. Mckenna et al. teaches that such arrangement allow viewing of “substantially all locations disposed radially” of the bands (col.21, lines 9-12), which inherently include areas outside of the overlapping field of views of the embodiment with separate spaced apart image sensors (note triangular regions between the field of view cones 65 in Figure 4 of Mckenna et al. and in Figure 2B of Meron et al.). This will only improve the nature of the 360 degree viewing and allow elimination of distortion at the edges of such wide fields of view. In view of this teaching, it would have been obvious to one of ordinary skill in the endoscope art at the time of the invention to have considered a sensor arrangement curved around the circumference of Meron et al. as an obvious alternative to the flat, spaced apart sensors to provided a greater degree of 360 degree viewing, as taught by Mckenna et al. One of ordinary skill would also readily recognize that such modification would appear to reduce the amount of space required to accommodate separate, flat imaging sensor (Figs. 6 and 7) by disposing the sensors on the shell wall and following the contours of the shell.

As to claims 27, 29, 31 and 41, as Meron et al. and McKenna et al both teach, a lens (62, Meron et al. and col.20, line 67 to col.21, line 1 of Mckenna et al.) covers the sensors. Such lens, by placement over the sensors will inherently cover the shell holding the sensors, and will meet the limitations of a lens (claim 29), “an outer shell that covers at least a portion of the shell” (claims 27 and 41), and “a covering that is applied over at least a portion of the shell) (claim 31). As to claims 28 and 42, imaging sensors are disclosed in both references, yet Mckenna et al. teach other sensors can be used (col.14, lines 18-38). As to claim 32, the Examiner takes the position that, since image sensor pixel elements (such as 322 in Figures 18-20 in McKenna et al.)

Art Unit: 3739

are not free standing elements that have to be individually arranged but are always formed together on a substrate (especially in imaging sensors), that these elements are inherently formed on a substrate that is sufficiently thin to be formed around the wall of the endoscope.

9. Claim 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Meron et. al. ('792) in view of Yu (U.S. Pat. 6,300,612).

Meron et al. discloses that the sensor (55) is "any suitable imaging device" (page 6, last line to page 7, first line) and exemplifies such as a CCD (page 11, line 24). Thus, Meron et al. fails to disclose that any of the sensors are made from a organic semiconductor. Yu teaches that image sensors made from organic semiconductors have been contemplated (note title), are at least an alternative to, if not equivalent, inorganic technology (e.g., CCD) (col.2, line 46 to col.3, line 25), and has advantages over inorganic technology (col.3, lines 41-49). It would have been obvious to one of ordinary skill in the art to have made at least sensor (55) in Meron et al. from an organic semiconductor in view of the teachings of Yu.

10. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meron et al. ('774) in view of McKenna et al. and further in view of Yu.

Meron et al. discloses that the sensor (64) may be a CMOS device but fails to disclose the particulars. Yu teaches that image sensors made from organic semiconductors have been contemplated (note title), are at least an alternative to, if not equivalent, inorganic technology (e.g., CMOS) (col.2, line 46 to col.3, line 25), and has advantages over inorganic technology (col.3, lines 41-49). It would have been obvious to one of ordinary skill in the art to have made

Art Unit: 3739

the imaging sensor (64) in Meron et al. from an organic semiconductor in view of the teachings of Yu.

11. Claims 33, 34 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meron et al. ('792) in view of Kosonocky (U.S. Pat. 4,774,557).

Meron et al. fails to share the particulars for the imaging devices (one of the sensors), and particular the type of material and the thickness of the substrates. A quick search in image sensor formation found references to silicon substrates for imagers ranging from at several (e.g. 3) to multiple hundreds (e.g. 600) of microns in thickness. Kosonocky et al. is just one example of a reference teaching the thickness of a silicon substrate when forming an imager (note 25 microns, col.2, lines 36-44). It would have been obvious to one of ordinary skill in the art to have used what is typically known in the art for materials and dimensions for components in the Meron et al./McKenna et al. device, including silicon for a substrate and the thickness as claimed.

12. Claims 33, 34 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meron et al. ('774) in view of McKenna et al. and further in view of Kosonocky.

Neither Meron et al. nor McKenna et al. share the particulars for the imaging devices, and particular the type of material and the thickness of the substrates. A quick search in image sensor formation found references to silicon substrates for imagers ranging from at several (e.g. 3) to multiple hundreds (e.g. 600) of microns in thickness. Kosonocky et al. is just one example of a reference teaching the thickness of a silicon substrate when forming an imager (note 25

Art Unit: 3739

microns, col.2, lines 36-44). It would have been obvious to one of ordinary skill in the art to have used what is typically known in the art for materials and dimensions for components in the Meron et al./McKenna et al. device, including silicon for a substrate and the thickness as claimed.

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1, 28, 29, 32, 33, 35, 40 and 42 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 9-12 of U.S. Patent No. 7,044,908. Although the conflicting claims are not identical, they are not patentably distinct from each other because the elements of the applications claims can be found in the patented

Art Unit: 3739

claims and since recitation of a “protective housing” in claim 9 of the patent would meet the limitation of a “shell” in the application claims.

Allowable Subject Matter

15. Claims 36-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

16. Applicant's arguments filed April 21, 2006 have been fully considered but they are not persuasive.

Regarding the drawings, since Applicant's discussion of Figure 5(b) does not produce a Figure, or even multiple Figures that readily suggests, in view of the description and correspondence of these Figures, the combination of a shell, sensors and an outer shell and/or covering, the objection to the drawings are being maintained and further explained.

Since no discussion of the previous prior art rejections appears in Applicant's response, no comment is required by the Examiner. Rejections are made above to address the new claims.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jap. Pat. 4-180736—note curved sensor (43) in Figure 11.

Although Iddan (2003/0195415) was previously cited by the examiner, it is noted that Iddan discloses a curved arrangement of sensor elements (44) formed in the shell (40), as shown in Fig.2. This reference meets the limitations of at least claims 26 and 40.

Although Kimchy et al. (2004/0054278) was previously cited by the examiner, it is noted that Kimchy et al. disclose a curved arrangement of sensors (Figs.5, 8a and 16b) in a CE. This reference meets the limitation of at least claims 26 and 40. Furthermore, in the case that a separate covering and/or outer shell is shown to be supported in the instant disclosure, Kimchy et al. disclose use of a second shell around the original shell (note [0351] and [0355]).

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

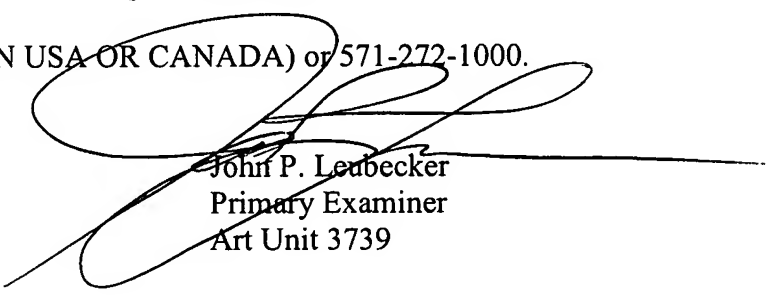
Art Unit: 3739

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Leubecker whose telephone number is (571) 272-4769.

The examiner can normally be reached on Monday through Friday, 6:00 AM to 2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda C.M. Dvorak can be reached on (571) 272-4764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John P. Leubecker
Primary Examiner
Art Unit 3739

jpl